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May 30, 1996

By Messenger

William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Washington, DC 20554

RECEIVED

MAY 30 1996

Re: CC Docket No. 92-297
Ex Parte Presentation

Dear Mr. Caton:

This letter is written on behalf of Hughes Communications, Inc. ("Hughes") in order to emphasize Hughes's strong support for Option 1 Prime---the 31 GHz solution, and to summarize recent discussions among Richard Leacock of Hughes, the undersigned, and Giselle Gomez of the International Bureau regarding this proceeding.

In short, the slight time delay and the small financial cost involved with the 31 GHz solution are near-term costs. Those costs pale in comparison to the significant and irreversible impact that Option 4 Prime---a permanent reduction in GSO FSS spectrum---would have on Hughes, GE, AT&T, Loral, Lockheed and other GSO operators, as we previously have documented.

At the outset, we note that one of the leading LMDS advocates, Hewlett-Packard, has endorsed the 31.0 GHz solution as a "rather appealing alternative" that "Hewlett-Packard would enthusiastically support if it helped to facilitate a final rulemaking." *See* Hewlett-Packard *ex parte* submission of May 17, 1996.

Hughes agrees with Hewlett-Packard. The 31.0 GHz solution allows the Commission to proceed promptly to a final allocation order based on the band plan originally proposed by the Commission in the July 1995 NPRM (so-called "Option 1"). The only significant difference is that in order to accommodate the new LMDS return link requirements that precluded sharing with MSS feeder links, LMDS would have its return links accommodated at 31.0 GHz, instead of at 29.1-29.25 GHz. Moreover, this result is consistent with the full Commission's edict in the Third NPRM in this proceeding (page 15, para 35) that any party not satisfied with Option 1 must bear the burden of any changes that are needed to accommodate it. Thus, it is entirely reasonable for LMDS, whose changed business plans have created the current impasse, to bear the slight burden of the 45-60 days that would be needed for regulatory procedures to redesignate the 31.0-31.15 GHz band for LMDS use.

In discussing band plan options for the 28 GHz band and the feasibility of redesignating the 31.0-31.15 GHz band for LMDS under Option 1 Prime, Mr. Leacock expressed his views that:

(1) Amplifiers exist today that operate in the 28 GHz band and also are capable of operating in the 31 GHz band. In order to accommodate the new frequency while maintaining the same power output levels, a preamplifier might need to be added at an estimated cost of only $2-3 per LMDS subscriber unit.

(2) Small (8" diameter) parabolic dishes that are essentially flat are possible today that could be used by an LMDS subscriber to receive and transmit across the ***entire*** 27.5-31.15 GHz band. The estimated cost of these dishes (including mounting hardware) is approximately $10-15 per unit. Alternately, an LMDS subscriber could utilize two of the narrow band "patch" antennas that currently have been proposed for LMDS operations at 28 GHz---one for the 27.5-28.35 GHz band and one for the 31.0-31.15 GHz band. Hughes estimates that an additional patch antenna would add no more than $8-13 to the cost of an LMDS "box." A second patch antenna would cost no more than a parabolic antenna ($10-15) and that cost would be offset by the fact that LMDS no longer would need to include a $2-3 filter that is required if LMDS uses a single transmit/receive antenna under any other band plan, including "Option 4 Prime."

(3) Hughes does not expect any significant "downconversion" issues with the 31 GHz solution for two main reasons. First, under any band plan under consideration, LMDS will have to access two separate frequency bands. Therefore, under ***any*** band plan proposal, Cellularvision will need to modify its current operations, which use 1000 MHz of contiguous spectrum, just as it will need to modify its current equipment in order to provide two-way service. Second, Endgate, Hewlett-Packard and Texas Instruments each plan to use

the upper band in one direction and the lower band in the other direction. Under that architecture, there is no downconversion issue because "hub to sub" transmissions would occur in 850 MHz of contiguous spectrum under ***any*** band plan.

(4) Hughes estimates that the 31 GHz solution would add, at most, $11-16 to the cost of an LMDS subscriber unit. Using the Hewlett-Packard estimate of a $1,500 per subscriber cost, this would be less than a 1% cost increase. Although Cellularvision has estimated its subscriber unit cost in the $300-400 range, that is for a one-way analog system, whose costs will increase when it is converted to a two-way system, due to the increased circuitry and the need for a high-power amplifier for the "sub to hub" link. Even using the current Cellularvision architecture, the 31 GHz solution amounts to less than a 5% cost increase, which is consistent with recent 5% cost increase estimate provided by Hewlett-Packard in its *ex parte* submission of May 17, 1996. And H-P has noted that LMDS will need to bear this type of cost increase in any event under Option 4 Prime to ensure some ability for LMDS to share with the GSO FSS. Moreover, based on Hughes's experience in designing the DIRECTV set top box, 5% is within the margin of error for estimating the cost of new equipment, like two-way LMDS systems.

(5) Finally, the change in path loss with LMDS links at 31.0-31.15 GHz versus 29.1-29.25 GHz will be made up by improved antenna gain at the higher frequency. Hughes has not seen any data to suggest that LMDS subscriber transmitter costs would be higher at 31 GHz.

Thus, Hughes strongly disagrees with TI's unsupported assertion that the 31 GHz solution is not feasible because "fundamental components would have to be duplicated, at prohibitive costs, in each LMDS subscriber unit." (*See* Letter to Mr. William F. Caton from Paul E. Misener, dated April 26, 1996.)

For these reasons, Hughes supports the 31.0 GHz solution as a way to allow *every* proponent of 28 GHz services to begin to implement its business plans promptly.

An original and two copies of this letter are enclosed.

Respectfully submitted,

John P. Janka

cc: Chairman Reed E. Hundt
Commissioner James H. Quello
Commissioner Susan Ness
Commissioner Rachelle Chong
Mr. Rudolfo Baca
Ms. Lauren Belvin
Ms. Jackie Chorney
Ms. Michele Farquhar
Ms. Jennifer Gilsenan
Mr. Donald Gips
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